

WHAT IS CLAIMED IS:

1. A system for measuring phase noise, comprising:
  - a tuner for tuning a signal from a device and converting the signal to a baseband signal;
  - at least one analog-to-digital converter (ADC) for capturing data from the baseband signal;
  - a timing processor for acquiring and tracking symbol timing of the captured data of the baseband signal;
  - a carrier processor for determining unwrapped phase history data from the tracked symbol timing;
  - a line fitting processor for determining a linear phase by fitting a straight line to the unwrapped phase history data; and
  - a subtractor for subtracting the linear phase from the phase history data to produce a residual phase of the carrier.
2. The system of claim 1, further comprising a fast Fourier transform (FFT) processor for determining a phase noise spectrum from the residual phase from the subtractor.
3. The system of claim 2, wherein the phase noise spectrum is scaled to dBc/KHz.
4. The system of claim 1, wherein the line fitting processor performs a minimum mean square (MMS) operation on the phase history data to determine the linear phase.
5. The system of claim 1, wherein the signal is from a low noise block (LNB) and the residual phase is substantially a performance measurement of the LNB.
6. The system of claim 1, wherein the signal comprises a satellite television signal.
7. The system of claim 1, wherein the captured data comprises a length based upon a lowest frequency of interest.

8. The system of claim 1, comprising more than one ADC and wherein the captured data comprises in-phase (I) and quadrature (Q) components.
9. A method for measuring phase noise, comprising the steps of:
  - tuning a signal from a device and converting the signal to a baseband signal;
  - capturing data from the baseband signal;
  - acquire and track the captured data of the baseband signal to determine symbol timing tracked data;
  - determine unwrapped phase history from the symbol timing tracked data;
  - fitting a straight line to the unwrapped phase history data to determine a linear phase;
  - and
  - subtracting the linear phase from the phase history data to produce a residual phase of the signal.
10. The method of claim 9, further comprising determining a phase noise spectrum from the residual phase with a fast Fourier transform (FFT) processor.
11. The method of claim 10, further comprising scaling the phase noise spectrum to dBc/KHz.
12. The method of claim 9, wherein fitting the straight line comprises performing a minimum mean square (MMS) operation on the phase history data to determine the linear phase.
13. The method of claim 9, wherein the signal is from a low noise block (LNB) and the residual phase is substantially a performance measurement of the LNB.
14. The method of claim 9, wherein the signal comprises a satellite television signal.
15. The method of claim 9, wherein the captured data comprises a length based upon a lowest frequency of interest.

16. The method of claim 9, comprising more than one ADC and wherein the captured data comprises in-phase (I) and quadrature (Q) components.
17. A system for measuring phase noise, comprising:  
means for tuning a signal from a device and converting the signal to a baseband signal;  
means for capturing data from the baseband signal;  
means for acquiring and tracking symbol timing of the captured data of the baseband signal;  
means for determining unwrapped phase history data from the tracked symbol timing;  
means for determining a linear phase by fitting a straight line to the unwrapped phase history data; and  
means for subtracting the linear phase from the phase history data to produce a residual phase of the signal.